

**Notice of Allowability**

Application No.

10/065,920

Examiner

Anjan K Deb

Applicant(s)

VOLLERTSEN, ROLF-P.

Art Unit

2858

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

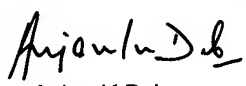
1. ☒ This communication is responsive to amendment filed 03/24/2004.
2. ☒ The allowed claim(s) is/are 1-38.
3. ☒ The drawings filed on 29 November 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance   |
|   | 9. <input type="checkbox"/> Other _____  |

  
Anjan K Deb  
Primary Examiner  
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### **DETAILED ACTION**

1. This office action is in response to amendment filed 03/24/2004.

#### ***Allowable Subject Matter***

2. Claims 1-38 are allowed.

#### ***Reasons for Allowance***

3. The following is an examiner's statement of reasons for allowance:

The primary reason for allowance of the claims is the inclusion of determining a critical breakdown resistance of the test structure, and recording a critical breakdown time when the operating resistance of the test structure is equal to or smaller than the critical breakdown resistance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

*Pertinent Art*

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

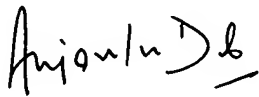
Satake, H.; Toriumi, A.; (Dielectric breakdown mechanism of thin-SiO<sub>2</sub> studied by the post-breakdown resistance statistics. Electron Devices, IEEE Transactions on, Volume: 47, Issue: 4, April 2000 Pages:741 – 745) discloses performing reliability studies on thin film dielectric breakdown of gate oxides by measuring resistance to breakdown  $R_{bd}$  of dielectric, wherein  $R_{bd}$  is defined as  $0.5 V_g/I_{bd}$  where  $V_g$  is gate voltage and  $I_{bd}$  gate current after breakdown. Satake et al. does not disclose recording a critical breakdown time when the operating resistance of the test structure is equal to or smaller than the critical breakdown resistance.

Takeda, K.-I.; Hinode, K.; Oodake, I.; Oohashi, N.; Yamaguchi, H.; (Enhanced dielectric breakdown lifetime of the copper/silicon nitride/silicon dioxide structure. Reliability Physics Symposium Proceedings, 1998. 36th Annual. 1998 IEEE International , 31 March-2 April 1998 Pages:36 – 41) discloses determining time to breakdown  $\tau_{bd}$  of a dielectric structure (Fig. 1) as a function of electric field strength  $E_{av}$  (Fig. 6). Takeda et al. does not disclose recording a critical breakdown time when the operating resistance of the test structure is equal to or smaller than the critical breakdown resistance.

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***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Anjan K. Deb whose telephone number is (571)-272-2228. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le, can be reached at (571)272-2233.



**Anjan K. Deb**

Patent Examiner

Art Unit: 2858

5/24/04

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